



Advanced Plastics Materials

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Summary

Germany is the world's third-largest producer of plastics, supplying 8% of the world market, after South/East Asia (29%), the United States (26%), with Japan (6.5%) ranking fourth. In 2004, Germany produced 17.5 million tons of plastics valued at EUR 19.9 billion, a volume increase by 4.2% and value increase by 10.1% over 2003.

The plastics sector is one of the pillars of the German manufacturing industry: About 3,610 firms are active in this sector employing 377,000 people. The majority of these companies are of medium size. The German plastics industry consists of three main sub-sectors: plastics production, plastics processing and plastics machinery.

The German plastics market, the largest in the EU, offers profitable market opportunities for U.S. producers of innovative plastics materials. Over the past few years, U.S. plastic materials imports showed steady growth rates. This trend is expected to continue throughout 2005 and above with estimated growth rates of 8-10%. Unlike commodity plastics, mainly supplied by Asian companies today, highly innovative plastics materials from the United States meet with particular interest. Strong competition from Asia in the field of commodity plastics will continue to put pressure on prices. As in 2003, plastics imports from the United States increased by more than 16% in 2004, which was, at least partially, a result of the favorable USD/EUR exchange. In view of the devastations of hurricane Katrina leading to closures of plastics production sites in the area, U.S. plastics products may face severe price increases. Analysts expect that Germany's imports of U.S. plastic materials imports may see slightly lower increase rates than the 16.6% achieved in 2004. Additional price increases can be expected in Europe as well, as a result of the steadily increasing crude oil prices.

Statistics, Market Highlights and Best Prospects

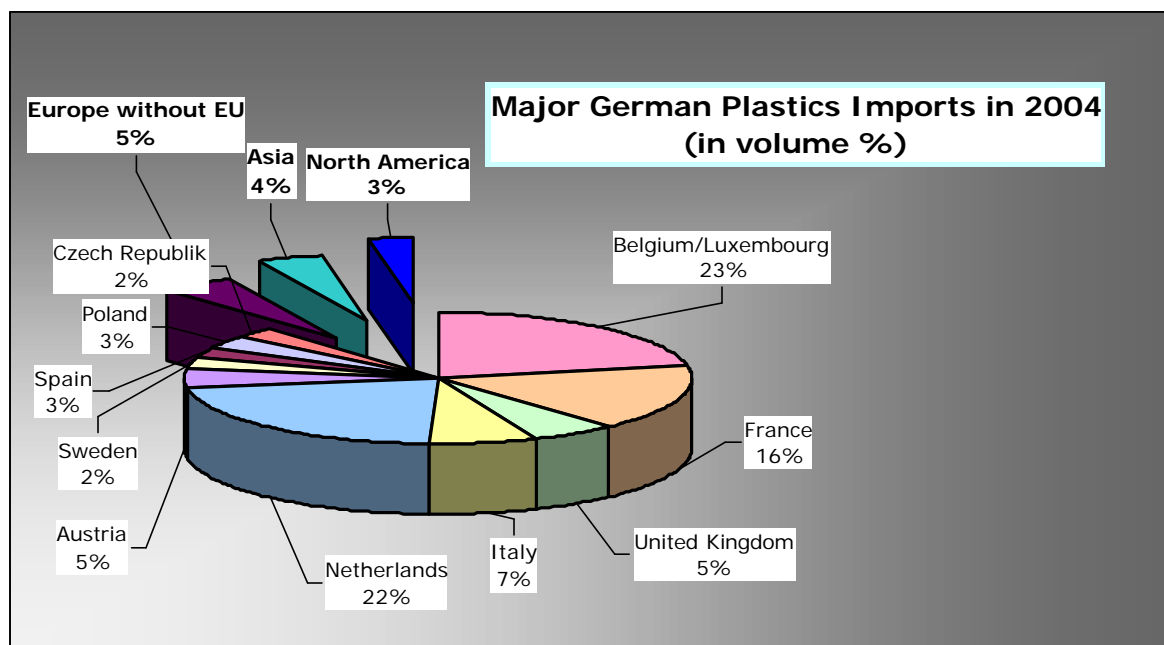
Unlike other German industries, the plastics market is experiencing steady growth. In 2004, German plastics production grew by 4.2% over the previous year reaching a total volume of 17.5 million tons valued at EUR 19.9 billion. The sector's growth rate is considerably higher than Germany's overall real growth, which only amounted to 1.6% in 2004. Total German plastics imports increased by 16.9% over 2003; imports from the United States by 16.6%; total German plastics exports by 16.6%. Even though the strong value increases are partially due to price increases, the plastics market's tendency is clearly positive and expects good growth over the next few years.

The German Market for Plastics Materials (EUR Million)

	2003	2004	2005 (est.)	Est. Avg. Annual Growth 2006-2008 (%)
Imports	7,247	8,474	9,829	10
Production	18,100	19,900	20,497	3
Exports	13,090	15,258	16,685	
Total Market	12,257	13,116	13,641	7
U.S. Imports	441	514	570	8-10

USD 1 equals EUR 1 throughout report.

In 2004, total plastic imports into Germany amounted to EUR 8.4 billion. The majority of plastics imports originated from within the EU, mainly from Belgium (EUR 1.68 billion); the Netherlands (EUR 1.68 billion); France (EUR 1.2 billion); Italy (EUR 577 million); and the United Kingdom (EUR 528 million). Plastics imports from the United States into Germany reached EUR 514 million in 2004.



With a total of 88% or 6.5 million tons valued at EUR 8.5 billion, EU countries contributed the largest share of German plastics imports in 2004.

Innovative plastics materials have best prospects. Plastics materials are increasingly replacing traditional materials: Window frames, formerly out of wood, are nowadays made of plastics and pipes are made of plastics instead of the traditional concrete or metal. Insiders project that western European plastics consumption, amounting to 99 kg per capita in 2004, will increase to 125.5 kg by 2010, representing an annual 3.5% increase.

High performance plastics, such as reinforced plastics and self-reinforced plastics; innovative composites; nano materials; and other new materials have good market potential. Today, high performance plastics account for about 1% of the global plastics market with an estimated volume of 300 kilotons. While the United States and other NAFTA countries focus on fluor polymers and amorphous high temperature thermoplastics, i.e., PES, PSU, PEI, Europe concentrates on PEEK and uses 54% of the world's PEEK materials. The European market for high performance plastics is expected to continue to increase with an estimated annual growth rate of 4%.

Insiders estimate that the total European market for reinforced thermosets grew by 10.4% in 2004, reaching approximately EUR 1.15 billion. Analysts expect the average annual growth rate for the next 2-4 years at 3.5-5%. The use of wood-plastics composites and nano composites is still limited. The past few months have seen an increase in commercially marketable nano materials. These are entering the markets more slowly than expected because commercialization is costly. U.S. suppliers offering export-ready nano materials should find a ready market in Europe since industry interest is very high.

Fiber reinforced plastics (FRPs) have become important. Their specific properties offer several advantages over traditional materials. Carbon-fibers and fiberglass components are of particular interest in the German automotive industry. Advanced sheet molding compounds (SMC) are reinforced by oriented uni-directional carbon fibers. A recent example in Europe is the new airplane giant A 380. 40% of it is made of composite materials, mainly carbon fiber reinforced plastics. While self-reinforced plastics (SRP) find a good potential in the automotive market because of their mechanical properties, this material is more expensive than long fiber reinforced thermoplastic and glass mat thermoplastics (GMT). Insiders point out that the potential of SRP is not limited to automotive applications. Markets offering high growth potential for SRP include: Orthopedic appliances; ballistic protection or other special textiles; sports; and industrial enclosures.

In addition, long fiber reinforced thermoplastic composites (LFRT) are of high interest because of their lightness and structural stability. LFRT materials, for example, are considered one of the fastest growing plastics market segments, particularly as a result of the strong demand in the German automotive industry, which is a major driving force for more lightweight innovative plastics materials. Long fiber reinforced thermoplastic composites have become increasingly important achieving growth rates of 8% annually, exceeding the overall plastics production 4.2% growth in 2004. Innovative in-line compounding processes and growing acceptance by the automotive industry have pushed LFRT into the market. LFRT competes with a wide range of well-established materials, including short fiber reinforced engineering plastic, SMC/BMC and metals. The German automotive industry consumes about 95% of the LFRT existing in the German market and there is good potential for U.S. imports.

Other plastic materials of growing interest are: PUR components, plastic electronics and bioplastics. Composites of polyurethane (PUR) offer high flow characteristics, different grades of durability and density, high temperature and pressure resistance, low-weight and high bending strength and meet with increased industry demand. BayerMaterial Science, for example, is quite active in the PUR composites field; BASF has recently built a new plant for PUR catalyzers, and is partnering with Degussa in the distribution of these products. Moreover, PUR composites can be processed in various, low cost production processes, including casting, spraying or reaction injection molding (RIM).

Electro-conductive polymers are already applied today in display, and solar technology as well as in sensors. Market experts anticipate a huge market potential for them in the near future, particularly in the fields of plastic electronic systems such as RFID; displays

(OLEDs/organic light emitting diodes, flexible displays); organic lighting and signage; photovoltaics (flexible solar cells); smart packaging; printed electronics; sensors and actuators in medical applications; data storage or consumer products. Furthermore, the German Federal Ministry for Education and Research (BMBF) is funding the development of innovative OLEDs with EUR 100 million over the next five years. OLEDs are based on electro-conductive polymers or small molecules. Market insiders expect the global turnover to double by 2006 to a total of EUR 1.1 billion.

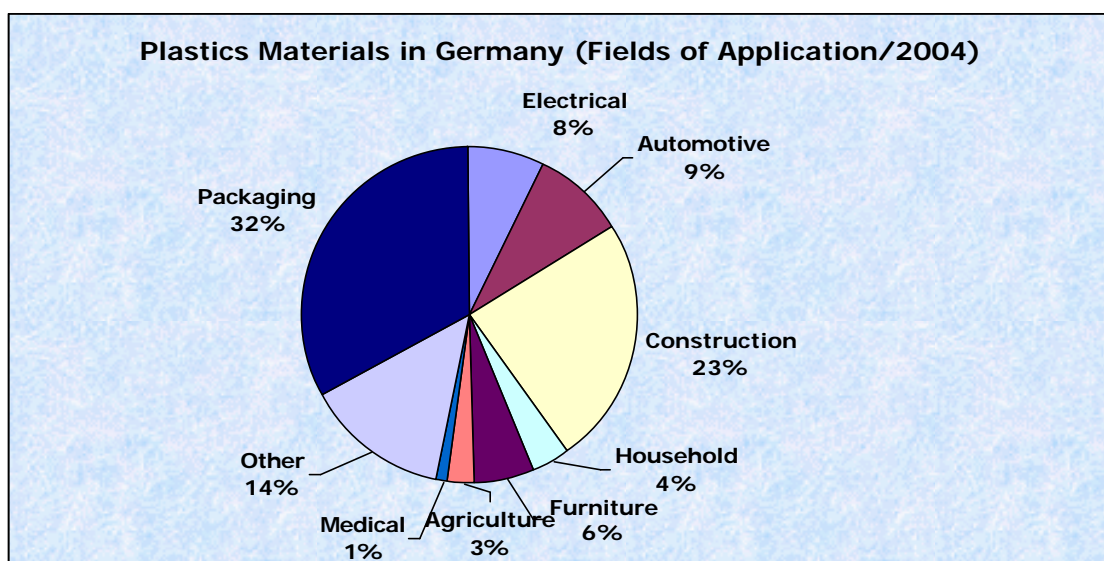
The German plastics market is increasingly open to bioplastic materials (BP). While in the past, market conditions and legislation did not particularly favor the introduction of bioplastic materials, the situation has started to change. Today, bioplastics packaging can be found in several European supermarket chains. Since May 2005, when the German packaging law was changed and oil prices started to soar, the interest in bioplastics has increased proportionately in Germany. The European plastics industries increased investment into alternative plastics including bioplastics solutions.

In addition to the above, any innovative materials offering advantages over traditional plastics are of interest to the German industry. These may be materials enhanced by special chemicals as, for example, silver preventing microbes in rubber parts of food machinery, successfully introduced into Europe by a U.S. producer; or, special materials for medical products, from cannulas over respirator components to adsorber materials for viruses or blood cells.

Recycling: In view of the many regulations and directives in the European market, the German plastics industry has to consider recycling when it comes to mixed plastics materials or composites. Basically, the long life span of polymeric composites and their material mixes can pose recycling problems. In this regard, the following EU directives are of particular interest: Waste Electrical and Electronic Directive (WEEE); the End of Life Vehicle (ELV) recycling regulations; and the Packaging Directive. As long as the cost for recycling is lower than the profits gained, industry will gladly favor the advanced materials.

End-User Industries

Major users of plastics materials in Germany are the packaging industry, the construction and the automotive industries. While the construction sector is still stagnating as a result of the overall downturn in the German economy, the packaging and automotive industries are growing, which has a positive influence on the overall German plastics market. Both sectors have seen clear increases. As in the past, the automotive industry, in particular, has proven to be a driving motor of innovation and demand.



Market Access

B2B marketplaces, direct purchase and marketing via wholesalers or distributors are the major channels of distribution in the German plastic materials sector. Standard plastics raw materials are often marketed via B2B marketplaces or are supplied by wholesalers. Competition from Asia is strong with regard to standard plastics materials despite the fact that German plastic material prices are said to be the lowest in all EU countries. Unlike innovative plastics, simple plastics are highly price-competitive. Several German distributors offer low-price materials from China, Malaysia and South Korea. Distributors also vary in size. A number of small distributors is usually specialized in certain types of materials. In general, distributors supply select industry sectors with plastics materials. German distributors usually prefer long-term business relationships and besides pricing, quality and supplier reliability are major buying factors.

Plastics Production in Germany (in tons million/growth in %)						
	2002		2003		2004	
	volume		volume		volume	
Production Total	16.50	5.8%	16.80	1.8%	17.5	4.2%
PVC	1.85	8.6%	1.92	3.5%	1.95	1.8%
PE-LD+LLD	1.55	2.0%	1.57	1.3%	1.61	2.5%
PE-HD	1.27	2.0%	1.29	2.4%	1.33	2.3%
PS+EPS	0.76	3.2%	0.84	7.8%	0.85	0.5%
PP	1.60	5.6%	1.78	11.6%	1.8	0.8%
PET	0.37	33.3%	0.40	8.1%	0.43	7.5%

The German plastics market is presently undergoing a restructuring process, and market consolidation is prevalent. Over the past months the streamlining of companies, downsizing and automation have been notable. Some German plastics manufacturers lack sufficient company capital and have problems in obtaining bank credits. Several processing companies are joining forces in purchasing raw materials to reduce costs. There is a trend towards mergers and forming larger conglomerates. Most of the large plastics suppliers or supplier groups operate throughout western Europe; some have established partners in eastern Europe.

Major Plastics Producers in Germany (incl. their special product focus), 2003:

Atofina (PA), Bakelite (other plastics), Barlo (PMMA), Basell (PE-LD/LLD, PE-HD/MD, PP), BASF (PS, EPS, ABS, ASA, SAN, PA, other thermoplastics, PUR), Bayer (ABS, ASA, SAN, PA, thermoplastics, PUR), Borealis (PE-HD/MD, PP), Degussa (PMMA, PA, other thermoplastics), Deutsche BP (PE-LD/LLD, PE-HD/MD, PS, EPS), Domo (PA), Dow (PE-LD/LLD, PP, PS, EPS, PET, PUR), DuPont (PA, other thermoplastics), Dyneon (other thermoplastics), EMS-Chemie (PA), EVC (PVC), Exxon Mobil (other thermoplastics), Kosa (PA, PET), Kraton (PA, other thermoplastics), Polimeri (PE-LD/LLD), Raschig (other plastics), Resolution (other plastics), Rütgers (other thermoplastics), Sabic (PE-LD/LLD, PE-HD/MD, PP), Solvin (PVC, PA), Ticona (other thermoplastics), Vestolit (PVC), Vinnolit (PVC).

Globalization is the dominating trend throughout all sectors of the German plastics industry. Due to the growing importance of the Asian markets, both as major buyers of plastics materials as well as alternative low-cost production sites, German and other European plastics firms have expanded their global partnerships. More and more machinery suppliers set up branches close to their customers to be able to provide timely support - be it in China, eastern Europe or western Europe. Big automotive, telecommunications and packaging producers expect their plastics processors to locate nearby. The trend towards globalization and concentration in the plastics industry remains unbroken. With eastern European countries joining the EU in May 2004, eastern Europe gained substantial importance as a production location and buyer market. Several European plastics manufacturers have already opened sites or at least, established business links with these emerging markets. Thus, Germany remains the largest and most important hub for plastics in western Europe and offers U.S. firms interesting sales opportunities in eastern Europe via German distributors.

Trade Promotion Opportunities

- Trade Publications:

Trade publications are an important resource for information on latest trends and developments. U.S. companies interested in breaking into the German market should consider advertising as a vehicle to introduce their company to the German market and to find customers. Following is a listing of major publications targeting the plastics industry:

K-Plastik + Kautschuk Zeitung

Internet: www.giesel.de

Frequency of publication: 23 issues per year

Circulation: 16,000

KI - Kunststoff Information

Internet: www.kunststoffweb.de

Frequency of publication: 51 issues per year

Circulation: 4,200

EUWID Kunststoff

Internet: www.euwid.com

Frequency of publication: 50 issues per year

Circulation: 1,000-1,500

Gummi-Fasern-Kunststoffe

Internet: www.gak.de

Frequency of publication: 12 issues per year

Circulation: 2,000

Kunststoff Magazin

Internet: www.hfzs.de

Frequency of publication: 12 issues per year; plus one special buying guide

Circulation: 18,000

Kunststoffe

Internet: www.hanser.de

Frequency of publication: 12 issues per year

Circulation: 16,500

Plastverarbeiter

Internet: www.huethig.de

Frequency of publication 12 issues per year

Circulation 11,850

- Opportunities for Profile Building/Trade Shows

German and European trade shows are international platforms for U.S. firms seeking to network with German and international buyers/distributors and to assess their competitors' lines and market situation. Upcoming shows in related sectors:

FAKUMA, Friedrichshafen, October 18-22, 2005, October 17-21, 2006:

Fakuma show offers a wide range from injection molding to extrusion, including machinery and systems, peripheral equipment, raw materials, additives, tools and molds, automation and quality control. In 2005, 1,471 exhibitors participated in the event attracting 36,000 visitors. The show takes place annually. <http://www.schall-messen.de/de/37515>

European Coatings Show, Nuremberg, May 08-10, 2007:

The biennial European Coatings Show (ECS) is Europe's major trade event for the coatings and paint industries. Apart from coatings and paints, the show presents adhesives, sealants, and construction chemicals. In 2005, 19,886 trade visitors from 85 countries attended the event showcasing 687 German and international exhibitors. <http://www.european-coatings-show.de/main/d89w7zjb/d8shn272/page.html>

K' Show, Duesseldorf, October 24-31, 2007:

K', the world's prime trade event for plastics and rubber materials and machinery offers the whole range of the plastics industry, including plastics and rubber machinery, raw materials and auxiliaries as well as semi-finished products, and services. In 2004 K' Show hosted 2,914 German and international exhibitors and attracted 230,978 visitors. The 148 U.S. firms in 2 U.S. Pavilions were very satisfied with the results of their participation. <http://www.k-online.de>

NanoEurope, St Gallen/Switzerland, September 12-14, 2006:

The annual NanoEurope was launched for the first time in 2003. In 2005, it hosted over 150 international exhibitors, including a small U.S. pavilion. The trade show is expected to gain importance and is on the way to become Europe's major trade event for nano materials. The show's product range includes: Nano materials and micro technology including life science; tools and sensors; optics and electronics; materials and surfaces; services and research.

http://www.nanofair.ch/cgi-bin/wPermission.cgi?file=/wDeutsch/messen/nanoeurope/wDeutsch/01_besucher/messe/ausstellerverzeichnis_2005.asp&navId=320

For More Information

The U.S. Commercial Service Germany can be contacted via e-mail at:

dusseldorf.office.box@mail.doc.gov, website: <http://www.buyusa.gov/germany/en/>.

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